



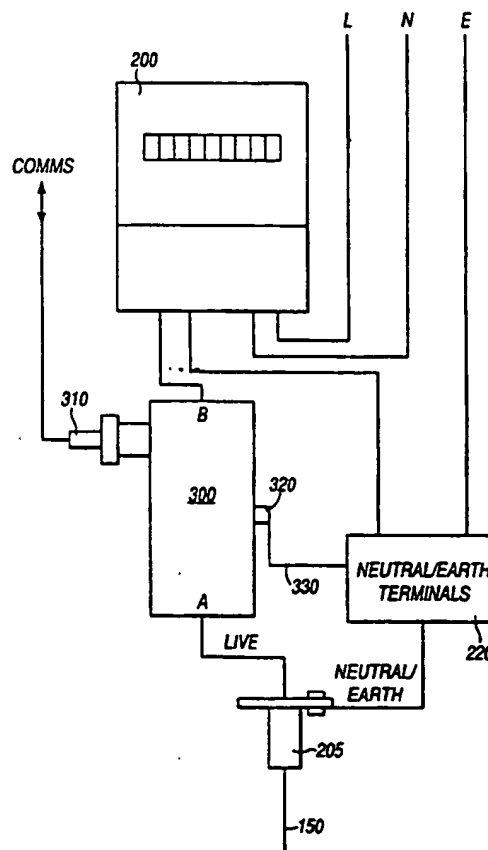
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H02J 13/00, H04B 3/56		A3	(11) International Publication Number: WO 98/33258
			(43) International Publication Date: 30 July 1998 (30.07.98)
(21) International Application Number: PCT/GB98/00173 (22) International Filing Date: 20 January 1998 (20.01.98) (30) Priority Data: 9701701.6 28 January 1997 (28.01.97) GB 08/869,257 5 June 1997 (05.06.97) US (71) Applicant (for all designated States except US): NORTHERN TELECOM LIMITED [CA/CA]; World Trade Center of Montreal, 8th floor, 380 St. Antoine Street West, Montreal, Quebec H2Y 3Y4 (CA). (72) Inventor; and (75) Inventor/Applicant (for US only): GREENWOOD, John, Christopher [GB/GB]; 40 Ash Road, Stratford, London E15 1HL (GB). (74) Agent: RYAN, John, Peter, William; Nortel Patents, London Road, Harlow, Essex CM17 9NA (GB).			(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims</i> <i>and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 11 September 1998 (11.09.98)

(54) Title: POWER LINE TRANSMISSION

(57) Abstract

A power line communications network carries power and communications signals over power lines. Fitted in the power line is a fuse unit (300) which has means for coupling communications signals to and/or from the power line. The fuse unit may include a high-pass filter. The fuse unit (300) is adapted to mate with an existing fuse socket in the power line to replace an existing fuse, thereby minimising disruption and simplifying installation. The fuse unit can also include means for impeding flow of non-power signals along the line.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00173

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H02J13/00 H04B3/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H02J H04B H01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 124 835 A (CAHILL JR WILLIAM J) 7 November 1978 see column 2, line 43 - line 62; figures 1-3 see column 3, line 32 - line 45 ---	1,2,4
X A	GB 2 062 376 A (SWISH PROD) 20 May 1981 see page 3, right-hand column, line 80 - line 117; figures 7-12 ---	18 1-17
A	WO 94 09572 A (BROWN PAUL A ;NORWEB PLC (GB)) 28 April 1994 cited in the application see abstract; figure ---	1-18

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

20 April 1998

Date of mailing of the international search report

14.07.98

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lampe, S

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00173

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 349 240 A (FELTEN & GUILLEAUME CARLSWERK) 18 November 1977 see page 4, line 22 - line 40; figure 1 ---	1-18
A	EP 0 119 187 A (HAWLAN HANS) 19 September 1984 see page 26, line 1 - page 27, line 1; figure 4 -----	1-18

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB 98/00173

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. claims 1-18: fuse unit incorporating means for coupling communications signals to and/or from the power line
2. claim 19: power line monitoring unit for coupling communications signals to and/or from the power line

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-18

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 98/00173

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4124835 A	07-11-78	NONE	
GB 2062376 A	20-05-81	GB 2060964 A EP 0028882 A	07-05-81 20-05-81
WO 9409572 A	28-04-94	AU 673388 B AU 5373294 A CA 2146648 A EP 0667067 A FI 951844 A GB 2272350 A,B GB 2304013 A,B HK 125897 A HK 125997 A JP 8505272 T NO 951500 A US 5684450 A	07-11-96 09-05-94 28-04-94 16-08-95 18-04-95 11-05-94 05-03-97 19-09-97 19-09-97 04-06-96 20-04-95 04-11-97
FR 2349240 A	18-11-77	DE 2617542 A BE 853836 A CH 612808 A	03-11-77 16-08-77 15-08-79
EP 0119187 A	19-09-84	AT 386704 B DE 3475589 A	10-10-88 12-01-89